

Docket No.: 9988.217.00  
(PATENT)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of:  
LEE, Soon Jo

Customer No.: 30827

Application No.: 10/528,830

Confirmation No.: 3733

Filed: March 23, 2005

Art Unit: 1792

For: DRUM FOR WASHER AND DRYER

Examiner: Heckert, Jason Mark

**MS Appeal Briefs - Patents**  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**APPEAL BRIEF**

Sir:

In response to the Final Rejection of all pending claims mailed on October 20, 2009 and in support of the Notice of Appeal filed January 20, 2010, the Appellant hereby submits this Appeal Brief.

The Brief contains items under the following headings as required by 37 C.F.R.

§ 41.37(c).

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I. **REAL PARTY INTEREST**

The real party in interest for this appeal is LG Electronics, Inc.

**II. RELATED APPEALS AND INTERFERENCES**

There are no other appeals or interferences that will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

**III. STATUS OF CLAIMS**

Total Number of Claims in the Application.

There are 28 claims pending in this application.

Current Status of Claims:

Claims canceled: 6-7, 9, 11-24, 27-28

Claims withdrawn from consideration but not canceled: None

Claims pending: 1-5, 8, 10, 25 and 26

Claims allowable: None

Claims rejected: 1-5, 8, 10, 25 and 26

Claims on appeal: 1-5, 8, 10, 25 and 26

**IV. STATUS OF AMENDMENTS**

An amendment was filed on June 10, 2009 amending claims 1-5, 8, 10, 25, and 26 and canceling claims 6-7, 9, 11-24, and 27-28. The Examiner issued a Final Rejection on October 20, 2009. In that Rejection, the Examiner rejected claims 1-5, 8, 10, 25 and 26. A Notice of Appeal was filed on January 20, 2010. Accordingly claims 1-5, 8, 10, 25 and 26 are pending in this application and claims 1-5, 8, 10, 25 and 26 are being appealed. The status of the claims are reflected in the Claims Appendix.

**V. SUMMARY OF THE CLAIMED SUBJECT MATTER**

Independent claim 1 is directed to a dryer comprising: a drum comprising a cylindrical metal body having a first diameter and a seam without an overlapping portion by butt welding, wherein the first diameter is not expanded (Figs 3-5; Fig. 7, items 100 and 130; p 3, l 22- p 4, l 6; p 7, ll 1-3; p 7, l 17- p 8, l 9; p 12, ll 18-22); end portions located at opposite ends of the cylindrical metal body, wherein the end portions have a second diameter smaller than the first diameter (Figs 3-5; Fig. 7, items 1a; p 3, ll 22-25; p6, ll 23-25; p7, l 19-25; p 11, l 21-p 12, l2); and folds having a folded edge at the end portions (Fig. 7, items 120; p 3, ll 22-25; p 11, l 21-p 12, l2).

Independent claim 26 is directed to a dryer comprising a drum comprising a body part formed by rolling a metal sheet into a cylinder, and butt welding a seam without an overlapping portion, having beads formed in a surface for strengthening (Figs 3-5; Fig. 7, items 100, 130, and 100a; p 3, l 22- p 4, l 6; p5, ll 8-13; p 7, ll 1-3; p 7, l 17- p 8, l 9; p 12, ll 18-22); the connection parts having diameters reduced continuously from opposite sides of the body part by pressing, respectively (Fig. 7, item 111; p 4, ll 2-3; p5, ll 8-13; p12, ll 11-17); reduced parts formed at opposite end parts of the body part, extended from one end of the connection parts by pressing respectively, each having a diameter smaller than a diameter of the body part (Figs 3-5; Fig. 7, items 1a; p 3, ll 22-25; p5, ll 8-13; p6, ll 23-25; p7, l 19-25; p 11, l 21-p 12, l2); and bent parts each having a folded edge of the reduced part a folded edge at the end portions (Fig. 7, items 120; p 3, ll 22-25; p5, ll 8-13; p 11, l 21-p 12, l2).

**VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

Whether claims 1-5, 8, 10, and 25 are indefinite under 35 U.S.C. § 112, second paragraph for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Whether claims 1-5, 8, 10 and 25-26 are unpatentable under 35 U.S.C. § 103(a) over U.S. Patent No. 6,062,049 to Martinsson (hereinafter "*Martinsson*") or U.S. Patent No. 4,854,054 to Johnson (hereinafter "*Johnson*") in view of U.S. Patent No. 3,685,338 to Hoffman (hereinafter "*Hoffman*") and further in view of U.S. Patent No. 1,645,971 to Riegel (hereinafter "*Riegel*").

Whether claims 1-5, and 26 are unpatentable under 35 U.S.C. § 103(a) over PCT Publication No. WO 03/008696 to Yoon (hereinafter "*Yoon*") in view of *Martinsson* or *Hoffman* and further in view of *Riegel*.



**VII. ARGUMENT****A. The Rejection of Claims 1-5, 8, 10, and 25 as Indefinite under 35 U.S.C. § 112, second paragraph, is Improper and Should be Reversed**

In the final Office Action, the Examiner argued that the amended claims were ambiguous because there are two interpretations of the claim language, "...a seam without an overlapping portion by butt welding." Office Action dated 10/20/09 at p. 2-3. Namely, the Examiner states that the two possible interpretations are "... a cylindrical metal body having a first diameter and a seam without an overlapping portion [caused] by butt-welding..." or "a cylindrical metal body having a first diameter and a seam [made by butt welding] without an overlapping portion..." Id. Nothing in the claim language or the specification supports the first alleged interpretation. Further, the Examiner, ignores the description of the specification clearly identifying the correct interpretation of the purportedly questionable language. The specification states that the metal cylinder is formed by "butt welding a seam 130 thereof with a plasma-TIG welder in a state opposite edges are not overlapped." p. 12, ll. 18-22. Thus, the specification identifies that the seam is made by butt-welding.

Accordingly, for at least these reasons, the rejection of claims 1-5, 8, 10, and 25 as indefinite under 35 U.S.C. § 112, second paragraph, is improper and should be reversed.

**B. The Rejection of Claims 1-5, 8, 10 and 25-26 as being obvious under 35 U.S.C. § 103(a) over *Martinsson* or *Johnson* in view of *Hoffman* and further in view of *Riegel* is Improper and Should be Reversed.**

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. See MPEP §2143; *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). Furthermore, if an independent claim is nonobvious under 35 U.S.C. §103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

## 1. Independent Claims 1 and 26

The combination of *Martinsson* or *Johnson* in view of *Hoffman* and further in view of *Riegel* (hereinafter “the *Martinsson* combination”) does not teach or suggest every element of claims 1 and 26. For example, the *Martinsson* combination does teach or suggest:

A dryer comprising...a cylindrical metal body having a first diameter and a seam without an overlapping portion by butt welding, wherein the first diameter is not expanded;...

as recited in independent claim 1. Similarly, the *Martinsson* combination does teach or suggest:

A dryer comprising...a body part formed by rolling a metal sheet into a cylinder, and butt welding a seam without an overlapping portion,...

as recited in independent claim 26.

In the Final Rejection, the Examiner erroneously relied upon the *absence* of a discussion of a seam without an overlapping portion by butt welding as teaching that element. The Examiner stated that *Riegel* taught “joining the opposing sections in a longitudinal direction by welding” and further described that “[a]t no point does *Riegel* state that an overlap is present.” Office Action dated 10/20/09 at p. 5.

First, the Examiner improperly relies on the lack of disclosure of an overlap in *Riegel*. As noted above, to establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. See MPEP §2143; *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). Further, a reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill in the art. See MPEP §2123; *Merck & Co. v. Biocraft Laboratories*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir), *cert. denied*, 493 U.S., 975 (1989).

*Riegel* is directed to forming corrugations in sheet metal cylinders. *Riegel* at 1:1-6. While the Examiner points out that *Riegel* does not state there is an overlap, *Riegel* also does not disclose a seam without an overlapping portion. To the contrary, *Riegel* merely references welding and joining the opposing sections (*Riegel* at 2:75-80), neither of which reasonably suggest “a seam without an overlapping portion by butt welding” would exist, as required by claims 1 and 26.

Second, the Examiner erroneously reads the welding of *Riegel* as butt welding. As discussed above, *Riegel* describes joining opposing sections by welding, but does not provide any additional information regarding the manner of welding or how the two opposing section meet. Thus, nothing in the disclosure of *Riegel* teaches or suggests “a seam without an overlapping portion by butt welding,” as required by claims 1 and 26.

Additionally, none of *Martinsson*, *Johnson* or *Hoffman* cure the deficiencies of *Riegel*. *Martinsson*, as discussed by the Examiner, describes welding and joint pressing but not in reference creating a seam in a cylindrical metal body or rolled metal sheet without an overlap by butt welding. *Martinsson* at 1:19-21, 49-53. Further, *Martinsson* provides no additional information regarding either the welding process or joint pressing. *Johnson* is directed to a dryer including a front bulkhead assembly providing a pair of airflow outlets from the drying chamber. *Johnson*, Abstract. While *Johnson* describes assembly of some of the components, nowhere does *Johnson* disclose a seam in a cylindrical metal body or rolled metal sheet without an overlap by butt welding. Similarly, *Hoffman*, directed to hems (*Hoffman*, Abstract), also fails to provide any such disclosure. Therefore, none of *Martinsson*, *Johnson* or *Hoffman* teach or suggest “a seam without an overlapping portion by butt welding,” as required by claims 1 and 26.

An objective technical problem to be solved in the claimed invention is how to decrease or prevent the vibration and the noise during the rotation of the drum by forming an entirely uniform circular shape of the drum, i.e. by improving the uniformity of the shape.

If the joined portion has an overlapping portion, the joined portion becomes significantly thicker than other portions of the drum. Furthermore, the joined portion protrudes from the drum body. Accordingly, a belt wound on the drum and such a joined portion make a great noise, while the drum rotates by the belt.

Further, when the intermediate drum with the overlapping portion is additionally expanded or deduce by the press working to have the shape required in the dryer, the finished drum has the very non-uniform circular shape due to the great thickness at the joined portion. For these reasons, the drum with the overlapping portion greatly produces the noise and the vibration during the rotation of the drum by the non-uniform rotation inertia.

In contrast, in the butt-welding process, one edge of the rolled metal sheet abuts on the other edge thereof and then the seam between the abutted edges is welded. There is therefore no overlapped portion and no increase in the thickness of the joined portion thereby. That is, the butt-welding process allows the intermediate drum has the relatively uniform thickness at least. For these reasons, the butt-welding is remarkably advantageous to maintaining relatively uniform circular shape of drum after the following reduction of both edge portions of the drum. If the drum does not have the uniform thickness by not applying the butt-welding, the drum already fails to maintain the uniform circular shape even before the following press working.

In this respect, the butt-welding would provide for preventing the noise and the vibration of the drum by the improved circular shape of the drum. This establishes the fact that the claimed feature provides the effective and substantial solution to the raised technical problem. Further, the butt-welding has been actually avoided in the prior art of the thin metal sheet drum due to the poor welding rate, contrary to the examiner's assertion.

However, the claimed invention adapted the butt-welding to improve the roundness of the drum. It is obvious from these facts that the butt-welding is not the direct technical choice in fabricating the metal sheet drum, and any well known art and the prior art including Riegel and the admitted prior art would not prompt the skilled person to apply the butt-welding to the fabrication of the drum.

Accordingly, for at least these reasons, , the rejection of claims 1 and 26 as being obvious under 35 U.S.C. § 103(a) over *Martinsson* or *Johnson* in View of *Hoffman* and further in view of *Riegel* is improper and should be reversed.

## 2. Dependent Claims 2-5, 8, 10 and 25

If an independent claim is nonobvious under 35 U.S.C. §103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Claims 2-5, 8, 10 and 25, depending directly or indirectly from independent claim 1, are also allowable over the combined teaching of *Martinsson* or *Johnson* in view of *Hoffman* and further in view of *Riegel* for at least the same reasons as independent claim 1.

Accordingly, for at least the foregoing reasons, the rejection of claims 1-5, 8, 10 and 25-26 as being obvious under 35 U.S.C. § 103(a) over *Martinsson* or *Johnson* in View of *Hoffman* and further in view of *Riegel* is improper and should be reversed.

**C. The Rejection of Claims 1-5, and 26 as being obvious under 35 U.S.C. § 103(a) over *Yoon* in view of *Martinsson* or *Hoffman* and further in view of *Riegel*.**

The combination of *Yoon* in view of *Martinsson* or *Hoffman* and further in view of *Riegel* (hereinafter “the *Yoon* combination”) does not teach or suggest every element of claims 1 and 26. For example, the *Yoon* combination does teach or suggest:

A dryer comprising...a cylindrical metal body having a first diameter and a seam without an overlapping portion by butt welding, wherein the first diameter is not expanded;...

as recited in independent claim 1. Similarly, the *Yoon* combination does teach or suggest:

A dryer comprising...a body part formed by rolling a metal sheet into a cylinder, and butt welding a seam without an overlapping portion,...

as recited in independent claim 26.

In the Final Rejection, the Examiner failed to address the claim limitation “...a seam without an overlapping portion...” Additionally, the Examiner again incorrectly relies on *Riegel* for teaching a butt welded seam. Office Action dated 10/20/09 at p 5-6.

As discussed above, *Riegel* does not teach or suggest the above identified claim limitations and *Martinsson* nor *Hoffman* cure the deficiencies. *Yoon* also does not teach this limitation. *Yoon* is directed to a drum device for a home appliance including insulating members to minimize noise. *Yoon* at p 1, ll8-10 and p 4, ll 19-27. Nowhere does *Yoon* teach or suggest “a seam without an overlapping portion by butt welding,” as required by claims 1 and 26.

Accordingly, for at least these reasons, , the rejection of claims 1 and 26 as being obvious under 35 U.S.C. § 103(a) over *Yoon* in view of *Martinsson* or *Hoffman* and further in view of *Riegel* is improper and should be reversed.

3. Dependent Claims 2-5

If an independent claim is nonobvious under 35 U.S.C. §103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Claims 2-5 depending directly or indirectly from independent claim 1, are also allowable over the combined teaching of *Yoon* in view of *Martinsson* or *Hoffman* and further in view of *Riegel* for at least the same reasons as independent claim 1.

Accordingly, for at least the foregoing reasons, the rejection of claims 1-5 and 26 as being obvious under 35 U.S.C. § 103(a) over *Yoon* in view of *Martinsson* or *Hoffman* and further in view of *Riegel* is improper and should be reversed.

**VIII. CONCLUSION**

For reasons as discussed above, claims 1-5, 8, 10, and 25 are improperly rejected as indefinite under 35 U.S.C. § 112, second paragraph. Claims 1-5, 8, 10, 25 and 26 are improperly rejected under U.S.C. § 103(a) as being obvious by *Martinsson* or *Johnson* in view of *Hoffman* and further in view of *Riegel*. Claims 1-5 and 26 are improperly rejected under U.S.C. § 103(a) as being obvious by *Yoon* in view of *Martinsson* or *Hoffman* in view of *Riegel*.

The Honorable Board is requested to reverse the rejections set forth in the final Office Action of October 20, 2009 and direct the Examiner to pass this application to issue.

If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. § 1.136, and any additional fees required under 37 C.F.R. § 1.136 for any necessary extension of time, or any other fees required to complete the filing of this response, may be charged to Deposit Account No. 50-0911. Please credit any overpayment to deposit Account No. 50-0911.

Dated: **April 21, 2010**

Respectfully submitted,

By

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Attachments

**CLAIMS APPENDIX**

**Claims Involved in the Appeal of Application Serial No. 10/528,830**

1. A dryer comprising:

a drum comprising:

a cylindrical metal body having a first diameter and a seam without an overlapping portion by butt welding, wherein the first diameter is not expanded;

end portions located at opposite ends of the cylindrical metal body, wherein the end portions have a second diameter smaller than the first diameter; and

folds having a folded edge at the end portions.

2. The dryer as claimed in claim 1, wherein the reduced part includes the opposite end part of the body part having a diameter thereof reduced by pressing.

3. The dryer as in claim 1, further comprising a connection part between the body part and the reduced part having a diameter reduced continuously.

4. The dryer as claimed in claim 1, wherein the cylindrical body is formed by rolling a metal sheet and butt welding a seam.

5. The dryer as claimed in claim 4, wherein the butt welding is made except predetermined lengths of opposite edges of the seam in a length direction for forming the bent parts.

6. - 7. (Canceled)

8. The dryer as claimed in claim 1, wherein a ratio of an inside diameter of the body part to the inside diameter of the reduced part is equal to, or greater than 0.9.

9. (Canceled)

10. The dryer as claimed in claim 1, wherein a difference of depths between an outside diameter of the body part adjacent to the reduced part and an outside diameter of the reduced part is below 25 mm.

11.-24. (Canceled)

25. The dryer as claimed in claim 1 wherein the bead is formed by pressing the body part inwardly at a predetermined depth along a circumferential direction of the body part by pressing.



26. A dryer comprising:

a drum comprising:

a body part formed by rolling a metal sheet into a cylinder, and butt welding a seam without an overlapping portion, having beads formed in a surface for strengthening; the

the connection parts having diameters reduced continuously from opposite sides of the body part by pressing, respectively;

reduced parts formed at opposite end parts of the body part, extended from one end of the connection parts by pressing respectively, each having a diameter smaller than a diameter of the body part; and

bent parts each having a folded edge of the reduced part.

27.-28. (Canceled).

**EVIDENCE APPENDIX**

None.

**RELATED PROCEEDINGS APPENDIX**

There are no decisions rendered by the Court or the Board regarding the Notice of Appeal filed January 20, 2010.

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